

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for ranking services in a web services computer hardware architecture having a hierarchy of services with a root originating service requestor, a service of a first level in the hierarchy calling a service of a lower level, the method comprising:

indicating a preference regarding at least one service and a ranking machine having a choice algorithm based on the preference;

invoking services of at least one level of hierarchy;

finding a set of possible lower-level services₂ by a service₁ using a directory at each level of the hierarchy;

applying the choice algorithm to the set of possible lower-level services, ~~wherein the lower level services are selected from service requestors or service providers;~~

~~referring the set of possible lower level services to the ranking machine from the directory and returning a preferred sequence by the ranking machine to the directory, and the referring the set of possible lower level services to the ranking machine from the directory is not visible to the service using the directory; and~~

~~sending the set of possible lower level services by the service using the directory to the ranking machine and returning a preferred sequence by the ranking machine to the service, wherein lower level invocations of services in the hierarchy are not visible to higher level services.~~

Claims 2-12 (Cancelled)

13. (Currently Amended) A web services computer hardware architecture comprising:

- a root originating service requester;
- a database storing a hierarchy of services in which a service of a first level calls a service of a lower level;
- a directory for finding services in the hierarchy;
- a ranking machine configured to apply a choice algorithm for services based on the originating service requestor's preference regarding one or more services; wherein
 - at each level of the hierarchy, the directory provides a set of possible services and the ranking machine applies the choice algorithm to provide a sequence of preferred services;
 - ~~the lower level services are selected from service requestors or service providers;~~
 - ~~the ranking machine is connected to the directory by a port and the set of possible services is referred to the ranking machine by the directory and the sequence of preferred services is returned to the directory by the ranking machine;~~
 - ~~a service of a first level finds a service of a lower level by means of a UDDI directory;~~
 - ~~the ranker machine has a port on the UDDI directory and processes flows turning TModel bags into a selected set of TModels;~~
 - ~~each UDDI operation is referred to the ranking machine and returned as a sequence conforming with the service requestor's preference, and~~
 - ~~underlying UDDI application code carries out the referral and appends the location of the ranker machine to subsequent XML flow.~~

Claims 14-19 (Cancelled)

20. (Currently Amended) A computer program product for a web services architecture having a hierarchy of services with a root originating service requestor, a service of a first level calling a service of a lower level, the computer program product comprising:

a computer readable medium having computer readable program code embodied therein, the computer readable program code comprising computer readable program code configured to cause a computer to perform the operations of:

indicating a preference regarding at least one service and a ranking machine having a choice algorithm based on the preference;

invoking services of at least one level of hierarchy;

finding a set of possible lower-level services by a service using a directory at each level of the hierarchy;

applying the choice algorithm to the set of possible lower-level services, ~~wherein the lower level services are selected from service requestors or service providers;~~

~~referring the set of possible lower level services to the ranking machine from the directory and returning a preferred sequence by the ranking machine to the directory, and the referring the set of possible lower level services to the ranking machine from the directory is not visible to the service using the directory; and~~

~~sending the set of possible lower level services by the service using the directory to the ranking machine and returning a preferred sequence by the ranking machine to the service, wherein lower level invocations of services in the hierarchy are not visible to higher level services.~~

21. (New) The method according to claim 1, wherein the lower-level services are selected from service requestors and service providers.

22. (New) The method according to claim 1, further comprising:
referring the set of possible lower-level services to the ranking machine from the directory, and
returning a preferred sequence by the ranking machine to the directory.

23. (New) The method according to claim 22, wherein
the referring is not visible to the service using the directory.

24. (New) The method according to claim 1, further comprising:
sending the set of possible lower-level services by the service using the directory to the ranking machine; and
returning a preferred sequence by the ranking machine to the service.

25. (New) The method according to claim 1, further comprising:
returning a single result or a sequence of results to the service using the directory.

26. (New) The method according to claim 1, wherein
lower-level invocations of services in the hierarchy are not visible to higher-level services.

27. (New) The method according to claim 1, wherein
the preference comprises at least one of
ranking services in an order in which the originating service requestor intends to
use the services,
excluding services from being used, and
providing other selection-influencing criteria.
28. (New) The method according to claim 1, wherein
the preference is based upon quality of service criteria comprising at least one of cost,
efficiency, speed, and reliability.
29. (New) The method according to claim 1, wherein
the preference overrides a selection by the service using the directory.
30. (New) The method according to claim 1, wherein
upon the preferred service not being available, a subsequent service is obtained by
reference to original preference.
31. (New) The method according to claim 1, wherein
upon a stored preference not being available, the service using the directory making the
selection.

32. (New) A web services computer hardware architecture according to claim 13,
wherein

the lower-level services are selected from service requesters and service providers.

33. (New) A web services computer hardware architecture according to claim 13,
wherein

the ranking machine is connected to the directory by a port,

the set of possible services is referred to the ranking machine by the directory, and

the sequence of preferred services is returned to the directory by the ranking machine.

34. (New) A web services computer hardware architecture according to claim 13,
wherein

a service of a first level finds a service of a lower level using a UDDI directory.

35. (New) A web services computer hardware architecture according to claim 34,
wherein

the ranking machine has a port on the UDDI directory and processes flows turning
TModel bags into a selected set of TModels.

36. (New) A web services computer hardware architecture according to claim 34,
wherein

each UDDI operation is referred to the ranking machine and returned as a sequence
conforming with a preference of a service requestor.

37. (New) A web services computer hardware architecture according to claim 34,
wherein

underlying UDDI application code:

carries out the referral, and

appends the location of the ranker machine to subsequent XML flow.